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MASTER OF MILITARY STUDIES

**TITLE: THE DISPARITY SURROUNDING THE INTEGRATION OF JOINT FIRES:
AN ARGUMENT FOR A JOINT FIRES OBSERVER (AIRBORNE) (JFO(A))**

SUBMITTED IN PARTIAL FULFILLMENT
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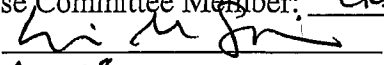
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Executive Summary

Title: The Disparity Surrounding the Integration of Joint Fires: The Genesis of the Joint Fires Observer (Airborne) (JFO(A))

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Thesis: The disparity between the Marine Corps and Air Force related to the understanding and execution of Close Air Support (CAS) and Forward Air Control (Airborne)FAC(A) must be resolved. My recommended partial solution is the creation of a Joint Fires Observer (Airborne) also known as a JFO(A).

Discussion: Joint Fires integration is crucial for success in the asymmetric fight of today and for the future. However, instead of working together, disparity exists surrounding the interpretation and execution of Forward Air Control (Airborne)(FAC(A)). This disparity is most visible between the Marine Corps and the Air Force. This disparity stems from the fractured evolution of Close Air Support (CAS) and FAC(A), but is perpetuated by the joint agreement in vague terminology. Some of the main factors which highlight the differences between the two services are: differences in mindset, the term "Close proximity", and the familiarity with the ground scheme of maneuver as it relates to integration of aerial and surface fires.

Conclusion: The time has come for a unification of terminology, understanding, execution, and training regarding CAS and FAC(A). History has shown us that with the limited amount of aviation assets, we need to train and fight Jointly. FAC(A), although a low priority mission which is very costly, is absolutely essential. Instead of diluting this mission to compensate for a falsely perceived shortage, I offer a partial solution at a fraction of the full cost. A Joint Fires Observer (Airborne)(JFO(A)) is that partial solution. By virtue of experience and normal proficiency training, an aviator could execute many of the same subtasks that a FAC(A) could minus terminal attack control and integration of joint fires. A JFO(A) could be a skilled and useful assistant to a Forward Air Controller (FAC), Joint Terminal Attack Controller (JTAC), or FAC(A) who is attempting to prosecute multiple target sets simultaneously.

Preface

I originally began this journey, looking for some answers related to Marine Corps Tactical Aviation. More specifically, I was interested in the Forward Air Control (Airborne) mission set commonly referred to as FAC(A). The main thrust behind this curiosity stemmed from personal experience. I am a Marine F/A-18D Weapons and Sensor Officer (WSO) by trade. Some of my qualifications include: Forward Air Control (Airborne) Instructor, and Weapons and Tactics Instructor. I have combat experience in the skies over Iraqi on two very different occasions. The first time was during the buildup of forces and initial attack north from Kuwait against Iraqi Main Force Units. The second was fighting an insurgency from an old Iraqi airbase in and around the Al Anbar province during the reform and rebuild phase. These two different personal experiences, coupled with my qualifications and training left me with questions related to the ever changing fight based on an asymmetric and elusive enemy.

The original problem statement that I set out to address was founded in the Marine Corps' decision to expand the FAC(A) platform list to include single seat / fixed wing platforms. Specifically, the F/A-18 A/C+ Hornet and the AV-8B Harrier VSTOL jet. It was my initial contention that the FAC(A) mission set, executed in its more challenging forms was too much for a single aviator to safely manage, and that fratricide or loss of the pilot and/or his platform were an inevitable result. This was the foundation of my academic journey.

As I began, I quickly realized that due to the infancy of my topic, that most of my research would be limited to primary sources and personal experience. This led me to seek the assistance of the Senior Research Fellow at the research center. With her

assistance, I was able to develop and distribute a demographic sheet and questionnaire throughout the Joint aviation community to gather data. I also was able to attend a strategy meeting and two conferences where I expanded my data field through personal interviews and focus groups. Upon collection and study I had a purposeful sample of my primary aggregate from which to draw certain conclusions.

My research revealed the true topic addressed in this paper. The more relevant topic was the noticeable disparity surrounding FAC(A) in a Joint environment. This disparity in the understanding of FAC(A) as a mission set, and how to effectively execute FAC(A), was having a negative impact in the protracted fight in Iraqi and to some extend in Afghanistan as well. Therefore, I expanded my topic and included this Joint disparity. As my research unfolded, I realized that perhaps there was a partial solution at a reduced cost. My recommendation, as defined in the following pages was for the joint aviation community to come together and define a Joint Fire Observer (Airborne).

Acknowledgments

I would first like to thank three professionals whom without their assistance, this paper would never have materialized: Dr. Eric Y. Shibuya, Dr. Patrice M. Scanlon, and Andrea L. Hamlen. Both Dr. Scanlon and Ms. Hamlen work in the Marine Corps University Leadership Communications Skill Center. To Dr. Shibuya: thank you for your guidance as my mentor. Dr. Scanlon was instrumental in helping me to develop a useful, well defined demographic sheet and questionnaire. She also guided me on interviewing and focus group techniques, not to mention helping me mold and shape my ideas into words. Ms. Hamlen often spent time letting me ramble about my very technical topic and through her Socratic method assisted in shaping my ideas and reducing my techno babble to suit my audience. Thank you both.

Additionally, I would like to thank the Marine Corps University Foundation for providing the means which facilitated my research trip. My trip, which encompassed two separate conferences, also allowed for face to face focus group and interview time. The time proved to be very useful. Overall, I was able to interface with the subject matter experts, program managers, and course directors from all the services, including those from across the spectrum of Close Air Support (CAS) and Forward Air Control (Airborne) (FAC(A)) in the Marine Corps today.

Last, I would like to thank all Marine, Sailors, Airmen, and Soldiers who took the time to share their experiences and opinions. Without their input, I would have been left to my own very narrow and different personal opinion.

Introduction

This paper discusses the issues/differences that hinder the practical application of FAC(A), primarily highlighted between the Marine Corps and Air Force. The relevant issue at hand is the danger that is posed by the disparity in interpretation, understanding, and practical application of FAC(A) in a joint environment, not necessarily the risk of overwhelming the single seat aviator. I intentionally left out the Navy, as they are closely aligned with the Marine Corps' understanding and mindset of FAC(A). Additionally, this paper is written from the perspective of fixed wing platforms only.

It is useful to start with some history to highlight the fracture points, and the disjointed evolution of both FAC(A) and CAS between these two services. In order to highlight the very different mindsets between the Marine Corps' subjugation of air power, and the Air Forces' struggle for strategic independence. Additionally, discussing the Marine Corps' position on FAC(A), and more importantly, the dangers associated with executing such a mission with only one pilot. Then contrast the Marine Corps' understanding and execution of FAC (A) with that of the Air Force. Last, a proposed solution to the dilemma faced by the joint community and the desperate need for commonality in terminology and understanding the CAS and FAC (A) mission sets in the current fight.

The methodology of research for this paper was mostly primary sourcing, as alluded to in the preface. Particularly, was the development and distribution of my questionnaire. This questionnaire was designed to solicit a purposeful sample from military professionals with job

specialties related to the topics discussed. The introduction, demographic sheet, and questionnaire utilized, are provided in the appendix of this paper.

Brief History

The utilization of air power, more specifically the offensive use of aircraft against ground forces, sprang from tactical necessity. All the way back as far as 1911, when Lt Ripley Scott dropped bombs on ground targets in training in College Park Maryland, up to the current fight in Iraq, aviators from all services in a variety of platforms from countries all over the globe have assisted in the evolution and development of tactical aviation employment.¹ This paper focuses in on the utilization of fixed wing assets executing FAC(A) in order to facilitate the coordination and integration of joint fires from a moving platform in a dynamic and hostile environment.

The problem that still haunts the joint world today is how to come to a mutually beneficial agreement of understanding, associated terminology and tactics, techniques and procedures to facilitate safe effective application of joint fires in “close” proximity to friendly forces. The two specific missions that are associated with solving this disparity are CAS and FAC(A). As has been demonstrated, the historical perspective shows that the Marine Corps (including Navy) and the Army Air Corps (which became the Air Force) had different experiences, which yielded different results and lessons learned. Through uncommon experience came dissimilar understanding of similar issues.

From their birth, Marine Corps aviation saw the immediate and instantly successful impact that air assets could have on the ground fight below, where proximity between friend and enemy was often very close. Through this experience, which had an amphibious flavor from the

outset, the Marine Corps grew up with its aviation assets employed as a direct supporting arm to the tactical ground commander. To the Marine Corps, it did not make sense, nor were they big enough to have long reaching strategic effects. The Marine Corps aviator came from the infantry. Even today, all Marine Officers begin with a base understanding of and exposure to infantry tactics and are steeped in ground maneuver warfare.

The seeds of Navy CAS were planted in the 1920s during Marine Corps action in Nicaragua, Haiti, and Santo Domingo; airplanes and infantry functioned as a team for the first time in military history.²

These differences were summarized by Lt Gen Lemuel C. Shepherd, commanding general, Fleet Marine Forces Pacific, in 1951: "we believe in providing a small number of on-station planes; the Air Force does not. We believe in continuous direct communication between the frontline battalion and the controlling air agency; the Air Force does not. We believe that CAS of the frontline troops should take precedence over routine interdiction missions; the Air Force does not."³

The Air Force experience was much different, as were their lessons learned which shaped their evolution and mindset. From the large air campaign waged in September of 1918, where Billy Sheppard demonstrated the successful integration of air and ground coordination, through Korea and Vietnam, during the initial deep strikes which kicked off actions against the Iraqi forces in 2003, the Air Force has developed a different and effective mindset.⁴ The mindset that the Air Force operates under, ever since their liberation from their ground counterpart, is one of strategic independence. This strategic mindset blossomed during the bombing campaign of World War II. This difference is critical for the understanding of how the services view and respond differently to integration with ground forces.

To the Air Force, which is a considerably larger force than the Marines, air power should be centrally controlled, and perform mutually exclusive yet beneficial tasks that meet the overall

strategic goals of the higher commanders intent. They do not believe that air power should be subordinated to the will of a ground commander, but rather that he is co-equal to the ground commander. The Air Force mindset is that aerial support comes from gaining and maintaining air superiority or supremacy over a battle space, thus denying the enemy the use of the air to influence or affect friendly forces.

Since the emergence of strategic bombardment during World War II, few airmen have willingly embraced what the British called "army cooperation;" that is, to provide direct support for the infantry. American and British aviators in particular wanted to perform missions that did not involve complicated liaison with ground forces, subordination of air forces to ground requirements, or attrition of air resources in unrewarding missions. They believe their contribution should be through strategic bombardment, air superiority, and interdiction.⁵

the idea still persisted that all aircraft might have to be committed directly to the land battle. Attack aviation was a post war creation; it had no past, no combat tradition, and no backlog of practical experience.⁶

Additionally, the Air Force is structured to take the fight to the enemy, where feasible and attrite his combat power, before he can bring it forward to engage friendlies at the frontlines.⁷

With this mindset, it makes sense that centralized and autonomous control should be held and maintained by the air commander, to allow him command and control over his forces, under the larger forces commander. Where the disparity is highlighted the most is when ground forces have closed within range of effective fires against one another.

Marine Aviation forces are used to being in a directly supporting role, and thus are very familiar with troop movements, trends, techniques, etc. This is the specific type of fight that the Marines are familiar with, what they have been trained for, what they have practiced, and where they feel most comfortable. The Air Force is used to operating autonomously; subservience through detailed coordination is unnatural and uncomfortable. There is an inherent lack of

understanding regarding the ground scheme of maneuver and commanders' intent of fires. An additional problem is one of inherent distrust, especially between services. This distrust stems from a lack of real joint pre-deployment training.

The second major difference was in technique. Navy-Marine CAS required pilots to be trained to recognize terrain and understand the capabilities and limitations of ground arms. With this knowledge and understanding, they could order strikes very close to friendly forces. Marine pilots were especially well trained in this respect; Air Force pilots did not receive the same degree of training.⁸

Perhaps this misunderstanding of the problem is at the root of the continued disparity faced every year since the finality of the Korean War, in which:

at the end of the Korean war, a joint air-ground operations conference representing the Army, Navy, Air Force, and Marine Corps met in Seoul and recommended that, in future operations, integration of all services should be secured by an organization and system similar to what finally developed in the last month of the Korean hostilities. The conference also pointed out the need for a joint air-ground doctrine that would encompass all services.

The Air Force's declining interest in CAS did not escape the Army. After the failure to draft a joint statement on CAS operations, the Army announced in January 1955 that the principles of the Joint Training Directive had already been repudiated by the Air Force and therefore did not bind the Army. The final irony was the Army Chief of Staff who found the doctrine so defective was none other than General Ridegeway. Perhaps it was especially appropriate that Eighth Army's most famous commanding general would declare void the Korean War's doctrine of CAS. For all practical purposes, the Army and the Air Force agreed not to agree on what part CAS would play in future war.⁹

Unfortunately for all, the impact of this disagreement was a perpetuation of stove pipe evolution of CAS and FAC(A) amongst the different services. Although the idea of needed joint doctrine and learning shared lessons from the most current conflict, these lessons were all over shadowed by the differences of the Army and the Air Force, and thus the lessons were lost.

The United States Marine Corps

The majority of individuals I interviewed, who were all from different services, agreed that The United States Marine Corps is, on average, more effective at performing the roles of CAS and FAC(A). I believe this is a result of a Marine's early training. All Marines are trained to be infantrymen first, creating a shared experience between the Marine aviator and his infantry counterpart. This gives Marine aviators an ingrained appreciation of the importance and nuances associated with the ground scheme of maneuver.

When asked to describe FAC(A) as a mission set or capability, a majority response from the Marine Corps aggregate, was that it was an airborne extension of the Tactical Air Control Party or TACP. This is to say that the aircraft, whose crew possess the FAC(A) qualification, are subordinated in mission execution and authority of fires, to the direction of the ground commander they are supporting. The common consensus was that aviation and air assets are a supporting role to the ground scheme of maneuver. This is not to say that the ground commander himself would be the one directing the individual aircraft around his battle space, but rather that aviation fires and their effects would be guided by his intent through his air officer and ground FACs.

Many people within the aggregate sample also spoke to the crucial importance of ensuring that the aircrew, who were executing terminal control of other aircraft, or directing other fires, were intimately familiar with the ground scheme of maneuver, to include the layout of all friendly forces. There were some vague or incomplete definitions listed as well. When

separated out, many of the Marine themes held to the maxim of detailed integration, understanding the ground scheme of maneuver and subordination of air to the ground commander's will and intent.

I also asked my sample group which they thought was more inherently effective: single-seat or two-seat FAC(A). This was later identified by many within the sample as a leading question; however, the general responses to this question raised some important points.

Most participants agreed that through division of tasks, mutual support, and cross checking, a multi-crewed aircraft could establish and maintain a quicker, more effective battle rhythm, while reducing the time to kill. Bottom-line is that multi-crew FAC(A) is more effective, though those who went through single-seat FAC(A) program say it can be effective. However, this was true in a permissive environment in good weather, and even those single-seat FAC(A)s noted the need for pre flight planning, maximizing the use of aircraft systems and available assets (e.g. using wingman /escort and/or ground FAC or JTACs). [Note: A Joint Terminal Attack Controllers (JTACs) is an enlisted member, not aircrew, who is trained to execute terminal control of aircraft in lieu of a ground FAC]. The current conflict is considered a permissive environment with regard to threat level to fixed wing platforms. I do concede that about 95% of the current situations requiring limited use of FAC(A) aircraft for terminal control of kinetic fires could be effectively executed by a single seat aviator. For the single seat FAC(A)s, a helper of some sort could prove to be useful for the other 5% of potential situations. The idea of a helper is the seed of my proposed solution.

During the course of the initial fight in Afghanistan, the Marine fixed wing aviation that was participating from the carrier battle groups were mainly single seat platforms. During their missions, Marine single seat aviators were checking on station with their capabilities and were being asked by ground units if they were FAC(A) capable. At the time, no Marine single seat platforms were authorized nor qualified to execute the FAC(A) mission. It was not that FAC(A) was a necessity, but that rather the perception of the ground FACs that if an aircraft were FAC(A) capable, they were automatically a more effective and trustworthy CAS player. This faulty perception created a perceived shortage of FAC(A) qualified aircrew.

This faulty perception stems from a lack of true joint training prior to combat execution, and therefore a vague understanding of capabilities and terminology. As has always been the case, aviation assets are limited and therefore can come from any service. Therefore ground troops requesting air are never sure which service will show up. If the aviation assets end up being from the same service as the ground unit being supported, there is usually more familiarity with capabilities and therefore less confusion. The common theme is a call for standardization of terminology and training.

What Marine single seat aviators from the carriers were experiencing was that ground FACs were servicing targets with FAC(A) qualified aircrew, which happened to be Air Force F-16s and A-10s at the time. This information filtered back to higher headquarters via their respective chains of command, which generated conversations about how the Marines in theater could participate in the fight more effectively. Unfortunately, the root of this problem was the misinterpretation of what the ground FACs asking for, and in many cases, requiring a

qualification, that was not needed or used in most cases. The ground FACs associated FAC(A)s with trustworthy CAS platforms which traditionally were configured with a targeting sensor. This Sensor afforded the aircrew with ability to have more fidelity when identifying and prosecuting potential targets. I believe that by asking for FAC(A) qualified crews and platforms, the ground FACs were really asking for trustworthy CAS players, with a targeting sensor. Unfortunately, this generated a false perception that there was a shortage of FAC(A) qualified crews and targeting sensors in theater.

The conversations in the higher headquarters boiled down to two high ranking aviators, both single seat fixed wing aviators from different platforms discussing potential alternatives. One of the alternatives proposed was the feasibility of executing the FAC(A) mission from a single seat fixed wing platform. In order to formalize this idea, the Marine Air Board (MAB) tasked Marine Aviation Weapons and Tactics Squadron-One (MAWTS-1) to do a qualitative assessment(QA).¹⁰

It is fair to note that within the purpose of this study: "The issue at stake was not if a single seat FAC(A) can be as capable as a two seat FAC(A). The crucial issue was if a single seat FAC(A) could meet the requirements of a joint FAC(A) Memorandum of Agreement (Appendix B) and be a valuable asset on today's battlefield." ¹¹ This QA was completed and the results published in a Tactical Development and Evaluation (TAC D&E) Final Report in June of 2005.

The ultimate conclusion of the QA was that single seat FAC(A) could be a capable asset on the battlefield, but it would require proper and thorough training and pre-flight planning. Some key recommendations that were made were that if single seat FAC(A) were to become a

reality, the Training & Requirements Manual (T&R), which standardizes training, would have to be adjusted to compensate for the additional requirements and needed assets. Another consideration was that additional funding would be required to compensate for such an addition. MAWTS-1 also felt strongly about one recommendation in particular:

MAWTS-1 does not believe that single seat platforms should be limited to certain FAC(A) mission areas and excluded from others, nor their employment constrained to certain threat levels or certain light levels. Either a single seat FAC(A) should be able to execute in all mission areas or he should execute none.¹²

This QA provided validation for the single seat fixed wing FAC(A) concept for the Marine Corps. The QA also validated the eventual replacement of the two seat F/A-18D (which during this time was the only authorized fixed wing FAC(A) platform in the Marine Corps) with the single seat Joint Strike Fighter.

AV-8B Harrier

The AV-8B Harrier jump jet had seen immediate success and an enhanced capability in locating targets more quickly with the use of the Litening Pod. The Harrier was also well known for its air to ground successes and capabilities. Harrier pilots also had a firm understanding of fires integration and ground scheme of maneuvers and how they fit into the integrated fight. With these initial assumptions, an obvious and intuitive question was whether or not the Harrier could be used in the execution of FAC(A). The only inherent problem with regard to physical restraints of the platform itself, was that it did not have the same longevity as the Hornet. This was due to its fuel carrying capacity, which could be offset to an acceptable level of time on station with the use of airborne re-fuelers.

The Marine Corps has held firm with their understanding and interpretation of CAS and the FAC(A) mission. The current conflict, and the inherent joint nature based on a limited number of aviation assets available have forced all the participating services to come to a common understanding of many different terms as well as Tactics, Techniques, and Procedures (TTPs). More specifically, for the purpose of this paper, the joint aviation community meets annually to update the Joint terminology and subsequent definitions related to CAS and FAC(A). Unfortunately, different services have learned different lessons. The problem that I see is that the agreed upon definitions are so vague that the differences and the issues of contention stem from the interpretation of the terms and tactics.

Joint Definitions

Joint Close Air Support (JCAS)

It is appropriate here to define the understood and recognized Joint terms from the Joint publications, and reveal some of the differences in the interpretations of the Marine and the Air Force. As CAS and FAC(A) are closely related, let us first begin with CAS. CAS “is air action by fixed and rotary wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces.”¹³ Additionally, the joint publication talks to the understanding that the planning and execution of CAS missions are meant to accomplish the objectives of the tactical units that they support.

The publication also speaks to the importance of coordination within the maneuver elements. The root of the disparity with regard to CAS, including cascading effects affects when

related to FAC(A), originates in the following passage: "CAS can be conducted at any place and time friendly forces are in close proximity to enemy forces. The word "Close" does not imply a specific distance; rather, it is situational. The requirement for detailed integration because of proximity, fires, or movement is the determining factor."¹⁴ I contend that by not defining, or at least limiting the interpretation of the term "close," many problems are created.

Joint Forward Air Control (Airborne) (JFAC(A))

This leads us to the definition and disparity regarding FAC(A). Joint Publications 1-02 and 3-09.3 define FAC(A) as, "A specifically trained and qualified aviation officer who exercises control from the air of aircraft engaged in close support of ground troops. The Forward Air Controller (Airborne) is normally an extension of the Tactical Air Control Party (TACP). Also called FAC(A)."¹⁵ Here again, the disparity is not the definition itself, but rather how that definition is interpreted. In the Marine Corps, as stated, air is a supporting arm. It is understood that in order to effectively be an airborne extension of the TACP, one must subordinate their efforts to him.

Additionally, Marines have a more ingrained understanding than their Air Force counterparts of the ground scheme of maneuver. The Marine Corps is used to, and prefers to bring multiple weapon systems to bear, either sequentially or simultaneously if able. The old Combined Arms Exercises (CAXs), which used to be held in Twenty-Nine Palms California, were designed to teach and practice fires integration.

The United States Air Force

The Air force executes the FAC(A) mission everyday in the global war on terror. The fixed wing platforms that they utilize for this mission are the F-16 and the A-10 (both of which are single seat platforms). As they do not have any two seat fixed wing platforms that currently perform FAC(A), there is no debate about effectiveness or safety enhancements by virtue of a dual crewed aircraft. The Air Force has primarily used single seat aircraft when executing FAC(A). During the Korean and Vietnam wars , when the Air Force was using the old light civil aircraft to initially gain an aerial perspective of the battle space, their experiences gave rise to an expanded role which grew as necessity required and technology allowed.¹⁶

The Air Force does have the same recognized Joint definitions of CAS and FAC(A) defined earlier. However, as alluded to earlier, the disparity between the services is most visible in the execution of both CAS and more specifically FAC(A). When interviewed, many of the Air Force aviators described FAC(A) as locating and identifying targets and directing other aircraft onto those targets. This definition included the terminal control of those aircraft during the prosecution of said targets.

Air Force and Marine Corps Disparity

The two main differences that I see when pinpointing the differences between the Air Force and the Marine Corps, and their execution of CAS and FAC(A) are: 1) The interpretation of the term 'in close proximity to friendlies' and, 2) The mindset of subordination of air power to the will of the supported ground commander . As stated earlier in the Joint publication, term

'close' is not definitively defined, but rather situationally dependent. This lack of consistent definition exacerbates the disparity between service interpretations.

'Close' Proximity

The Navy and the Marine Corps understand "close proximity" as anywhere between 50-200 yards (danger close). This distance has grown slightly with the advent of more powerful weapons, but the new term used and recognized is collateral damage estimate (CDE), which is published for generic weapons in the Joint Fires publication also known as 'J-Fire'. The Air Force, however, interprets 'close proximity' as anywhere between danger close, all the way to as far as 20 miles.¹⁷

Fire Support Coordination Measures (FSCM)

This disparity is also highlighted in the difference between two different, yet similar, Fire Support Coordination Measures (FSCM). The two FSCMs are the Fire Support Coordination Line (FSCL) and the Battlefield Coordination Line (BCL), both are defined for clarity in the glossary. The reason there are two FSCMs (FSCL and BCL) is because of the problem between the services.

The very existence of these two terms (FSCL & BCL) highlights the fact the joint community agrees to disagree, instead of coming to a general consensus or finding the common ground that is mutually supportive and beneficial to all participating services. The reason that the term BCL came about was that when Army and Marine units were fighting next to one another on the conventional battlefield of old, they would share the limited air assets available

from all of the services. When the Army artillery capability out ranged that of the Marine Corps, the Air Force saw the opportunity to push the FSCL out further to the limits of this new range. If the Marine Corps blindly agreed to this new FSCL, it would create a gap where they would be unable to range the FSCL with their inherent artillery capabilities. This would create a sanctuary that the enemy could potentially capitalize on. This disparity was brought forward and argued, but was voted against by a majority (as the Marine Corps is the smallest service). In order to compensate, the Marine Corps pushed hard and got the addition of the BCL.

Scenario

During my research trip I posed the following scenario to different groups of aviators from both the Air Force and the Marine Corps. You are a qualified, and currently proficient FAC(A). You have just come off the tanker, and when you switch to check into your working area, the ground FAC tells that you he wants to look for targets north of his position. You do in fact find some valid targets, but are out of ordnance. What do you do? The results to me highlighted the similar yet different perspectives of both services.

Air Force Response

To the Air Force, based on the agreed upon definitions, they go forward and locate / identify a target of opportunity. They call through the command and control system and put in a request for aviation assets to service these time sensitive targets. Once these assets arrive, they establish radio contact and de-conflict with the on-coming assets. After talking the CAS assets on to the targets of interest, the FAC(A) passes standard terminology and proceed to prosecute

these targets with the assets that have come to assist. The FAC(A) monitor the attacking aircraft and ensure that they are serviced with reports of effectiveness and results.

The Air Force explanation did in fact execute those sub-tasks which are within the recognized Mission Essential Task List (METL) for that of a FAC(A). They did locate the target and generate accurate coordinates. They also requested air-to-ground assets through the proper command and control request system, using the proper format and required information. They established radio communications and gave all appropriate briefs with all required information in the correct format. They were well versed on the capabilities and limitations of the weapons and platforms utilized. They were effective, timely, and safe in the prosecution of these targets. They even established the geometry necessary to position themselves to assess that the attacking aircraft was in fact lined up on the correct axis with the target. Lastly, they monitored the impacts, assessed effectiveness and passed the terminal attack information to attacking aircrew to be relayed to the command and control agencies. To the Air Force, since the lead aircraft terminally controlled the attack of an aircraft against a ground target, from another aircraft, they viewed this scenario as FAC(A).

Marine Response

Marines responded to the scenario by asking a series of questions about the ground scheme of maneuver. Some of the questions asked were things like, who is the FAC/ JTAC ? Where is he located? Where are the friendlies in relation to the target? When I responded that the friendlies were located well outside of the immediate area, the response I got was that it sounded

like a Strike Coordination and Reconnaissance (SCAR) mission, and that no special qualifications were required.

Strike Coordination and Reconnaissance (SCAR)/ Armed Reconnaissance (AR)

SCAR and AR are considered Interdiction Operations. AR is more of a hunter-killer mindset, where armed aircraft move into the deep battle space, and look to locate, close with, and destroy targets of opportunity to reduce the enemies' combat capabilities prior to these targets being within range to effect the ground forces. SCAR is similar, but different in the fact that it is more of a deep battlefield manager, monitoring certain areas of the battlefield, or the movement and location of mobile systems. Additionally, SCAR aircraft can direct routing and flow of follow on assets to High priority targets, preventing redundant attacks, thus preventing fraudulent use of limited assets.¹⁸ The Air force does not make the distinction between SCAR and FAC(A), and with the freedom of interpretation of the term "close proximity," it easier to see where the disparity in application comes from.

Mindset

When asked in their questionnaires: "In your opinion, do you feel there is a disparity in the understanding of a FAC(A)'s capabilities amongst different services?", almost all of the Marines answered that there was a disparity, and that it was very obvious to them. The Marines believed that the Air Force viewed FAC(A) as a means of facilitating Air Fires, and in some cases do not seem to have a detailed understanding of the fires approval chain. Others commented that they did not believe that the Air Force understood how to integrate and de-

conflict fires from multiple platforms, and indirect fires simultaneously. Almost all Marines said that what the Air Force calls FAC(A) is in most cases nothing more than SCAR.

Also of note, when talking with one of the Air Force FAC(A) instructors about the training, I was told that the A-10s do not have any formal requirement to train to integration of fires, nor are they exposed to any indirect fire control/coordination or rotary wing CAS. Even some of the Air Force participants agreed that there is a disparity in application and execution of the FAC(A) mission in the Air Force.

Recommendations

In trying to effectively integrate and standardize the application of joint fires on all battlefields, both present and future, conventional and asymmetric, it is essential that all services sit down and agree on standardized, stringent definitions of the definition and application of both CAS and FAC(A). If mindset difference and definable understanding of distances cannot be agreed upon within the Air Land Sea Application (ALSA) recognized terminology that currently exists, I recommend that we throw these terms away and spend the extra time to create or adjust new terms and definitions that we can all agree to. To reduce or dilute terms, or to delete definitions or blur precision from the language is not only confusing, but the cascading effects in most cases end up in the real time applied understanding of combat forces amidst a fight for someone's life. Until all services can comfortably agree on the disparity in terminology, understanding and application of CAS and FAC(A), then no useful solution is possible.

Unfortunately, at present, this cross functional disparity has been overcome or rather circumvented by each service through varied interpretation, which has manifested itself in an

almost accepted difference in application of CAS and FAC(A) depending on which service is in the fight. This problem is exacerbated when the United States tries to expand its capabilities and incorporate coalition allies. How can we expect to standardize our TTPs with another country, if we cannot even do it between sister services?

Another alternative is an 80% solution to the perceived FAC(A) shortage, at 20% of the cost. In the current fight as we have discussed, one of the cascading effects of misunderstanding and interpretation of FAC(A) as a skill set based mission, is a perception that we do not have enough FAC(A)s to handle the current fight. Although this is absolutely false, and there is no factual evidence to support this perception, it still none the less exists. Hand and hand with this exaggeration is the perception that we don't have enough ground FACs. This misperception led to the cultivation of the JTAC. From the JTAC MOA came the JCAS definition, which naturally gave rise to the JFAC(A) definition. These jointly recognized definitions grew to include recognition of definable missions and task lists. The task lists gave rise to standardization of training. When talking about all these inter-related and completely relevant topics, the issue of money is of great importance, especially when the daily bill of mission execution is so high. The next logical step is to look for either short cuts or cost effective compromises.

Joint Fires Observer (Airborne) (JFO(A))

A cost effective alternatives is: make a Joint Fires Observer (Airborne) (JFO(A)). In order to facilitate standardization, all the services must agree on a single definition. If you follow the logic above of the genesis of where the current joint terminology, which is ineffective, came

from, then it should not be a leap that a JFO(A) is an Airborne version of the Joint Fires Observer (JFO).

Joint Fires Integration

According to the Joint Pub 3-0 Doctrine for Joint Operations, "Joint fire support includes joint fires that assist air, land, maritime, amphibious, and special operations forces to move, maneuver, and control territory, population, airspace, and key waters."¹⁹ It is important to define what joint fires is, as this definition was the justification behind the Army going forward with the concept of creating a Joint Fires Observer (JFO) to assist the JTAC in the performance of his duties. Forward Observers (FO)s have long been an integrated part of the fire support teams, and have assisted FACs with great effects. "The idea is to provide a limited capability to control CAS in situations where a qualified JTAC is not collocated with the FO and the situation requires immediate assistance from available CAS assets. The intent is not to circumvent the need for a qualified JTAC, but to address the fact that a JTAC cannot be present in all locations of the joint battle space."²⁰

Much in this vein, a JFO is to a FAC or a JTAC, as the JFO(A) will be to the FAC(A) or FAC. The concept is that of someone who is qualified, but not necessarily separately and uniquely as a FAC(A), but rather more naturally as part of the training which they already execute. Many of the recognized subtasks from the METL are tasks that are taught and trained to during normal training. During the natural progression of a fixed wing aviator, he is taught certain tasks and skill sets, such as air to ground bombing and CAS. As he becomes more proficient, he adds more skills. By the time a pilot is a section leader for example, he will already

be able to perform many of the tasks associated with FAC(A) and CAS, such as airspace coordination and battle space de-confliction. Rather than the full capability set associated with the FAC(A) mission, the JFO (A) is someone who is helpful to the terminal controller, either airborne or ground based who can perform many of the functions from the JFAC(A) METL short of terminal control and integrated fire packages.

In many of the missions during the course of the last 5 years, including FAC(A) centric missions in both Afghanistan and Iraq, less than 5% actually called for the integration of fires from multiple platforms. Although FAC(A) is a very low probability mission (in its purest form), and is extremely costly both in time and money, it still remains absolutely essential. I do not recommend a dilution of this mission, by either reducing the standardized requirements, or reducing the associated METLs. The proposed alternative is to build in the assistance of an aviator who brings similar capabilities to the fight inherent with and commensurate to his experience level. The more seasoned he becomes, the more helpful he could be, until he is fully qualified as a FAC(A).

Lastly, if FAC (A) is executed in its more challenging forms, the single seat pilot is in for a very tough time. This is especially true if the pilot is unfamiliar with the battle space and doesn't have external assistance. This situation would and should fall under what I will term "emergency FAC(A)". In the Marine Corps, this single seat mission is only available as an advanced qualification and is not a tactical requirement inherent within a single seat squadron's role or mission. I agree with that label and concede (in accordance with the QA done by MAWTS-1) that it could be a feasible combat enhancer.

Endnotes

1. John W Ellis Jr. The Airborne Forward Air Controller: Past Accomplishments and Future Opportunities. (Santa Monica, CA: The Rand Corporation, February 1978), 3.
2. Gary R. Lester, Mosquitoes to Wolves: The Evolution Of the Airborne Forward Air Controller (Maxwell Air Force Base, AL: Air University Press, 1997), 15.
3. Lester, 18.
4. Ellis Jr., 4.
5. Lester, 2.
6. Lester, 7.
7. Lester, 71.
8. Lester, 17.
9. Lester, 75.
10. Tactical Development and Evaluation (TAC D&E) Final Report: Qualitative Assessment (QA) of the USMC Single Seat FAC(A) Concept in the FA-18 A/C and AV-8B. (June 2005), iv.
11. QA, 16.
12. QA, 18.
13. U.S. Joint Forces Command "Joint Publication 3-09.3: Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)". (3 September 2003), I-1.
14. JP 3-09.3, ix.
15. JP 3-09.3, HO-01-A-4.
16. Lester, 32.
17. Lester, 18.
18. Marine Aviation Weapons and Tactics Squadron- One "Forward Air Controller (Airborne) Handbook" Yuma, Az (01 January 2004), 146.

19. U.S. Joint Forces Command "Joint Publication 3-0: Joint Operations". 17 September 2006 (Incorporating Change 1 13 February 2008).

20. JCAS Action Plan / Joint Forces Command (JFCOM), 2003, 3.

Bibliography

"A-10 Thunderbolt II" http://en.wikipedia.org/wiki/A-10_Thunderbolt_II 12 March 2008.

ALSA "FM 3-09.3 JFIRE – Multi-service procedures for the joint application of firepower: Tactics, Techniques, and Procedures" <[www. Alsa.mil](http://www.alsa.mil)> (October 2004).

Brown, Colonel David R. "JTAC: MOA vs JTTP." *Field Artillery*. January-February 2005: 18-21.

Ellis Jr., John W. *The Airborne Forward Air Controller: Past Accomplishments and Future Opportunities*. Santa Monica, CA: The Rand Corporation, February 1978.

Joyner, Bo "A perfect fit:F-16 pilots taking on new forward air control, close air support missions." 1 August 2005.

<http://www.encyclopedia.com/printable.aspx?id=1G1:136652460> (12 March 2008).

Lester, Gary R. *Mosquitoes to Wolves: The Evolution of the Airborne Forward Air Controller*. Maxwell Air Force Base, AL: Air University Press, 1997.

Longoria, Michael A. "Joint Fires Observer." U.S. Field Artillery Association 2005.
<http://findarticles.com/p/articles/mi_m0IAU/is_5_10/ai_n15966576/print>.

Marine Aviation Weapons and Tactics Squadron- One "Forward Air Controller (Airborne) Handbook" Yuma, Az (01 January 2004).

Marine Corps Order 3500.46: FA-18 Training and Readiness Manual, 10 September 2004.

McDaniels, Jeffery R. "Viper FAC-A Effectiveness of the F-16 Block-40." April 2000.
<http://stinet.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA393985> (12 March 2008).

Tactical Development and Evaluation (TAC D&E) Final Report: Qualitative Assessment (QA) of the USMC Single Seat FAC(A) Concept in the FA-18 A/C and AV-8B. June 2005.

U.S. Joint Forces Command "Memorandum of Agreement (MOA): JCAS AP MOA 2004-01 Joint Terminal Attack Controller (JTAC) (Ground), 1 September 2004.

U.S. Joint Forces Command "Memorandum of Agreement (MOA): JCAS AP MOA 2004-02 Joint Forward Air Controller (Airborne), 1 September 2007.

U.S. Department of Defense "Joint Publication 1-02: Department of Defense Dictionary of Military and Associated Terms". 12 April 2001 (As Amended Through 04 March 2008).

U.S. Joint Forces Command "Joint Publication 3-09.3: Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)". 3 September 2003.

U.S. Joint Forces Command "Joint Publication 3-0: Joint Operations". 17 September 2006 (Incorporating Change 1 13 February 2008).

U.S. Joint Forces Command "JCAS Action Plan", 2003.

Wilson, LtCol Steve "JTAC Counterpoint: Another look at training requirements for joint terminal air controllers." Marine Corps Gazette. December 2006, <http://www.mca-marines.org/gazette/webarticle1dec06.asp> (12 March 2008).

Glossary

ALSA - Air Land Sea Application Center – Joint Standardization of abbreviated terms.

AR - Armed Reconnaissance

BCL - Battlefield Coordination Line - An exclusive Marine Corps fire support coordinating measure, similar to an FSCL, which facilitates the expeditious attack on targets with surface indirect fires and aviation fires between the BCL and the FSCL. If the FSCL is placed such that a sanctuary exists between the range of USMC artillery and the FSCL, the Marine Air-Ground Task Force (MAGTF) commander has the option of using a BCL. To facilitate air-delivered fires and integrate air and surface fires, an Airspace Coordination Area (ACA) will always overlie the area between the BCL and the FSCL.

CAS - Close Air Support - is air action by fixed and rotary wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces

FAC(A)- Forward Air Control (Airborne) - A specifically trained and qualified aviation officer who exercises control from the air of aircraft engaged in close support of ground troops. The Forward Air Controller (Airborne) is normally an extension of the Tactical Air Control Party (TACP). Also called FAC(A).

FAC - Forward Air Controller

FSCL - Fire Support Coordination Line - FSCLs facilitate the expeditious attack of surface targets of opportunity beyond the coordinating measure. FSCL does not divide an area of operation, define close and deep areas, nor define an area for CAS. Forces attacking targets beyond the FSCL must inform all affected commanders in sufficient time to avoid fratricide. Short of the FSCL, the commander controls all air to ground and surface-to-surface attacks. The inability to conduct coordination will not preclude the attack of targets beyond the FSCL.

FSCM - Fire Support Coordination Measure

JCAS - Joint Close Air Support

JFAC(A) - Joint Forward Air Control (Airborne)

JFO- Joint Fires Observer

JFO(A)- Joint Fires Observer (Airborne)

JMOA- Joint Memorandum Of Agreement

JTAC - Joint Terminal Attack Controller- an enlisted member (non aviator) who is special trained and qualified to terminal control CAS aircraft

Litening Pod - 4th Generation targeting device with optics for TV and infared imagery as well as laser designation capability

MAWTS-1- Marine Aviation Weapons and Tactics Squadron – One

METL- Mission Essential Task List

Permissive Measure - These measures are used to authorize the attack of targets without clearance from the ground commander if established conditions are met.

SA - Situational Awareness

SCAR - Strike Coordination and Reconnaissance

TACP - Tactical Air Control Party

T&R - Training and Requirements Manual – this manual is standardized by Marine Aviation Weapons and Tactic Squadron – One (MAWTS-1), it encompasses all the training specifics by platform type and model.

TTPs - Tactics Techniques and procedures

QA - Qualitative Assessment

FAC(A) Demographic Information Sheet & Questionnaire Instructions

Participants,

Let me first start by saying thank you for your time. Please let me take a moment to explain the need for the requested information, as well as how the information will be used.

The information requested on the Demographic Information Sheet is so I am able to build a contextual framework of who is providing the information contained within the questionnaire or Focus Group participants respectively. Of note: Names are optional, as is contact information in the event that further fidelity is requested based on your input. Please know that none of the information collected will be used on a by-name or individual basis, but rather as part of an aggregate sample of information and data via primary sources. Non-attribution will be upheld for any and all remarks, unless otherwise requested.

The primary Topic of Discussion & subsequent questions revolve around Forward Air Control (Airborne), also known as FAC(A). Other related topics are Single-Seat FAC(A) and the definitions and understood capabilities of FAC(A) qualified aviators and crews.

With many relatively new developments and evolutions associated with FAC(A), it is challenging to collect research data and information. For this reason, the following information is requested from you, the active war fighters.

Please feel free to distribute this to anyone whom you think may have an opinion. Electronic input is preferred, but hard copies will be accepted until the deadline. I will be accepting inputs up to and including Thursday, 20 December, 2007, at which point collation and analysis begins.

Thank you again for your time and effort, provided below is my contact information.

Very Respectfully,

Maj David "Frek" Phillippi, USMC

Cell: (843)592-1132

Email: frekf18@yahoo.com

Demographic Information Sheet

1. **Name (Optional):** _____
 - a. **Can I contacted you if further information is requested?** YES / NO
 - b. **If Yes, please provide information on how you would like to be contacted (phone number / e-mail ect.)** _____
2. **Call-sign:** _____
3. **Service:** _____
4. **Active Duty or Reserve?** _____
5. **MOS / Job Specialty:** _____
 - a. (Please include any additional ex) **WTI, Top Gun, Weapons School**
 - b. (if not USMC, please specify if pilot or other)
6. **Platform Type: (if F/A-18, please specify model)** _____
7. **# of Flight Hours in Type / Model:** _____
8. **Do you have any combat experience?** YES / NO
 - a. If yes, Air or Ground or Both? AIR / GROUND / BOTH
9. **Are you are qualified FAC (A) ?** YES / NO
 - a. If yes, any combat controls? YES / NO
 - b. If yes, approx. number of controls? _____
 - c. Where were you trained / certified? _____
10. **Are you a FAC (A) Instructor?** YES / NO
 - a. If yes: Single-Seat / Two-Seat / or Both
 - b. Where were you trained / certified? _____
11. **Are you a qualified FAC ?** YES / NO
 - a. If yes, any combat controls ? YES / NO
 - b. If yes, approx. number of controls? _____

FAC (A) Questionnaire

1. *Define FAC (A), in your own words?*
2. *Describe the FAC (A) skill set, as you understand it?*
3. *Which do you think is safer: Single-Seat or Two-Seat FAC (A)?*
 - a. *Why?*
4. *In your opinion, do you feel that there is a disparity in understanding of a FAC(A)'s capabilities, amongst different services? (please be specific)*
5. *Have you ever been controlled by a FAC (A)?*
 - a. *If Yes, Single-Seat or Two Seat (if known)?*
 - b. *What service was the FAC (A) from (if known)?*
 - c. *While being controlled by the FAC (A), did anything happen that scared you, or that you thought was unsafe? (if yes, please be as specific as you can remember)*
 - d. *Did the event occur during training or combat?*
 - e. *What was your impression / opinion of his/her competence as a FAC(A)?*
 - i. *Why?*
6. *Have you ever controlled other aircraft as a FAC (A)?*
 - a. *If yes, Fixed-Wing or Rotary-Wing or both?*
 - b. *While controlling other aircraft, did anything happen that scared you, or that you thought was unsafe? (if yes, please be as specific as you can remember)*
 - c. *Did this event occur in training or combat?*
7. *Have you ever controlled Indirect Fires as a FAC (A)?*
 - a. *Did this event occur in training or combat?*
 - b. *While controlling indirect fires, did anything happen that scared you, or that you thought was unsafe? (if yes, please be as specific as you can remember)*

8. *If you are a qualified ground FAC, Have you ever had a FAC (A) control fires for you?*

- a. If yes, Fixed-Wing, Rotary-Wing, or Indirect Fire, or any combination (if combination, please specify).*
- b. Did this event occur in training or Combat?*
- c. While the FAC (A) was controlling fires for you, did anything happen that scared you, or that you thought was unsafe? (if yes, please be as specific as you can remember)*
- d. Was the FAC (A) Single-Seat or Two-Seat?*
- e. What service was the FAC (A) from?*
- f. What was your impression / opinion of his / her competence as a FAC(A)?*

9. *Are there any additional points / topics / comments that you feel were not addressed in this questionnaire? (please be as specific as you would like, and feel free to attach an additional sheet if you need more room).*

10. *Do you have any concerns or frustrations associated with FAC (A)? (please be as specific as you would like, and feel free to attach an additional sheet if you need more room).*

11. *In your opinion is FAC (A) a viable and validated Tactic?*

12. *If you had 5 minutes to tell the Commandant anything you wanted about FAC (A), what would you say? (non-attribution of course)*